Amendments to the Claims

Listing of the Claims

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

1. (Currently Amended) A decoding method of decoding multiplexed data using the Viterbi decoding method, wherein the multiplexed data are composed by time division multiplexing a plurality of data streams, the multiplexed data are coded with at-least a convolution code, and a coding rate and a modulation scheme are set individually for each of the data streams, the decoding method comprising the steps of:

~~measuring a strength of a noise in the multiplexed data;~~

~~checking whether the strength of the noise measured is equal to or greater than a predetermined value; and~~

initializing a path metric calculated based on the Viterbi decoding method, at a moment when decoding of one of the data streams is started, so that the path metric is not calculated based on a previously input data stream that includes errors ~~if the strength of the noise measured is equal to or greater than the predetermined value~~.

2. (Previously Presented) The decoding method according to claim 1, wherein the path metric is initialized only if a coding rate of a second data stream

to be decoded subsequently to a first data stream that has been decoded is larger than a coding rate of the first data stream.

3. (Currently Amended) A data receiving system comprising:

a Viterbi decoder which decodes multiplexed data composed by time division multiplexing a plurality of data streams, the multiplexed data coded with at least a convolution code, a coding rate and a modulation scheme being set individually for each of the data streams;

~~a signal-to-noise ratio monitor which measures a strength of a noise included in the multiplexed data~~;

~~a comparison unit which checks whether the strength of the noise measured is equal to or greater than a predetermined value and outputs a notification signal if the strength of the noise measured is equal to or greater than the predetermined value~~; and

an initialization signal generation unit which outputs an initialization signal for initializing a path metric calculated by said Viterbi decoder, at a moment when decoding of one of the data streams is started, ~~when the initialization signal generation unit receives the notification signal~~, so that the path metric is not calculated based on a previously input data stream that includes errors.

4. (Previously Presented) The data receiving system according to claim 3, further comprising a signal selection unit which,

receives the initialization signal,

checks whether a coding rate of a second data stream to be decoded subsequently to a first data stream that has been decoded is larger than a coding rate of the first data stream, and

provides the initialization signal to said Viterbi decoder only if the coding rate of the second data stream is larger than the coding rate of the first data stream.

5. (Previously Presented) The data receiving system according to claim 3, further comprising a distribution unit which distributes the multiplexed data into a plurality of information corresponding respectively to the plurality code streams, after the multiplexed data are decoded.

6. (Previously Presented) The data receiving system according to claim 3, further comprising a multiplexed information decoding unit which extracts and decodes multiplexed information from the multiplexed data when the multiplexed information decoding unit receives multiplexed data including the multiplexed information.

7. (Currently Amended) The data receiving system according to claim 20 ~~3~~, further comprising a register storing the predetermined value that is variably set in accordance with a signal the register receives.

8. (Previously Presented) The data receiving system according to claim 3, wherein said data stream is of a BPSK, QPSK or 8PSK scheme.

9. (Currently Amended) A decoder comprising:

a Viterbi decoder which decodes multiplexed data composed by time division multiplexing a plurality of data streams, the multiplexed data coded with at least a convolution code, a coding rate and a modulation scheme being set individually for each of the data streams;

~~a signal-to-noise ratio monitor which measures a strength of a noise included in the multiplexed data;~~

~~a comparison unit which checks whether the strength of the noise measured is equal to or greater than a predetermined value and outputs a notification signal if the strength of the noise measured is equal to or greater than the predetermined value;~~ and

an initialization signal generation unit which outputs an initialization signal for initializing, at a moment when ~~which~~ decoding of one of the data streams is started, a path metric calculated by said Viterbi decoder, ~~when the initialization signal generation unit receives the notification signal~~, so that the path metric is not calculated based on a previously input data stream that includes an error.

10. (Currently Amended) A data transmitting and receiving system comprising:

a transmitting unit which transmits a time division multiplexed data including a plurality of data streams; and

a receiving unit which receives and decodes the time division multiplexed data,

said receiving unit including,

a Viterbi decoder which decodes said time division multiplexed data,

a signal-to-noise ratio monitor which detects a noise in the time division multiplexed data; and

an initialization signal generating unit which outputs an initialization signal to said Viterbi decoder on the basis of the noise detected so as to initialize, at a moment when decoding of one of the data streams is started, a path metric calculated by said Viterbi decoder, so that the path metric is not calculated based on a previously input data stream that includes an error.

11. (Previously Presented) A data transmitting and receiving system according to claim 10, wherein the initialization signal is output to said Viterbi decoder only if a coding rate of a second data stream to be decoded subsequently to a first data stream that has been decoded is larger than a coding rate of the first data stream.

12. (Currently Amended) A decoding method of decoding multiplexed data using the Viterbi decoding method, wherein the multiplexed data are composed by time division multiplexing a plurality of data streams, the

multiplexed data are coded with at least a convolution code, the decoding method comprising the steps of:

~~measuring a strength of a noise in the multiplexed data;~~

~~checking whether the strength of the noise measured is equal to or greater than a predetermined value;~~ and

initializing a path metric calculated based on the Viterbi decoding method at a moment when a synchronous signal is detected from the multiplexed data, so that the path metric is not calculated based on a previously input data stream that includes an error ~~if the strength of the noise measured is equal to or greater then the predetermined value~~.

13. (Currently Amended) A data receiving system comprising:

a Viberbi decoder which decodes multiplexed data composed by time division multiplexing a plurality of data streams, the multiplexed data coded with at least a convolution code, a coding rate and a modulation scheme being set individually for each of the data streams;

~~a signal-to-noise ratio monitor which measures a strength of a noise included in the multiplexed data;~~

~~a comparison unit which checks whether the strength of the noise measured is equal to or greater than a predetermined value and outputs a notification signal if the strength of the noise measured is equal to or greater than the predetermined value~~; and

an initialization signal generation unit which outputs an initialization signal for initializing a path metric calculated by said Viterbi decoder, at a moment when a synchronous signal is detected from the multiplexed data, ~~when the initialization signal generation unit receives the notification signal~~, so that the path metric is not calculated based on a previously input data stream that includes an error.

14. (Previously Presented) The data receiving system according to claim 12, further comprising a synchronizer which detects the synchronous signal and outputs a control signal to the initialization signal generation unit when the synchronous signal is detected.

15. (Currently Amended) A decoder comprising:

a Viterbi decoder which decodes multiplexed data composed by time division multiplexing a plurality of data streams, the multiplexed data coded with at least a convolution code, a coding rate and a modulation scheme being set individually for each of the data streams;

~~a signal-to-noise ratio monitor which measures a strength of a noise included in the multiplexed data;~~

~~a comparison unit which checks whether the strength of the noise measured is equal to or greater than a predetermined value and outputs a notification signal of the strength of the noise measured is equal to or greater than the predetermined value;~~ and

an initialization signal generation unit which outputs an initialization signal for initializing a path metric calculated by said Viterbi decoder, at a moment when a synchronous signal is detected from the multiplexed data, ~~when the initialization signal generation unit receives the notification signal~~, so that the path metric is not calculated based on a previously input data stream that includes an error.

16. (Previously Presented) The data decoder according to claim 15, further comprising a synchronizer which detects the synchronous signal and outputs a control signal to the initialization signal generation unit when the synchronous signal is detected.

17. (Currently Amended) A data transmitting and receiving system comprising:

a transmitting unit which transmits multiplexed data composed by time division multiplexing a plurality of data streams, the multiplexed data coded with at least a convolution code, a coding rate and a modulation scheme being set individually for each of the data streams; and

a receiving unit which receives and decodes the time division multiplexed data,

said receiving unit including,

a Viterbi decoder which decodes the multiplexed data;

~~a signal-to-noise ratio monitor which measures a strength of a noise included in the multiplexed data~~;

~~a comparison unit which checks whether the strength of the noise measured is equal to or greater than a predetermined value and outputs a notification signal if the strength of the noise measured is equal to or greater then the predetermined value~~; and

an initialization signal generation unit which outputs an initialization signal for initializing a path metric calculated by said Viterbi decoder, ~~at a moment when the initialization signal generation unit receives the notification signal~~, so that the path metric is not calculated based on a previously input data stream that includes an error.

18. (New) The decoding method according to claim 1, further comprising:

measuring a strength of a noise in the multiplexed data;

checking whether the strength of the noise measured is equal to or greater than a predetermined value; and

initializing the path metric if the strength of the noise measured is equal to or greater than a predetermined value.

19. (New) The decoding method according to claim 1, wherein the one of the data streams has a coding rate of a high error correction ability and the data stream including the error has a coding rate of a low error correction ability.

20. (New) The data receiving system according to claim 3, further comprising:

a signal-to-noise ratio monitor which measures a strength of a noise included in the multiplexed data; and

a comparison unit which checks whether the strength of the noise measured is equal to or greater than a predetermined value and outputs a notification signal to the initialization signal generation unit if the strength of the noise measured is equal to or greater than the predetermined value,

wherein the initialization signal generation unit outputs the initialization signal for initializing the path metric upon receiving the notification signal.

21. (New) The data receiving system according to claim 3, wherein the one of the data streams has a coding rate of a high error correction ability and the data stream including the error has a coding rate of a low error correction ability.

22. (New) The decoder according to claim 9, further comprising:

a signal-to-noise ratio monitor which measures a strength of a noise included in the multiplexed data; and

a comparison unit which checks whether the strength of the noise measured is equal to or greater than a predetermined value and outputs a notification signal to the initialization signal generation unit if the strength of the noise measured is equal to or greater than the predetermined value,

wherein the initialization signal generation unit outputs the initialization signal for initializing the path metric upon receiving the notification signal.

23. (New) The decoder according to claim 9, wherein the one of the data streams has a coding rate of a high error correction ability and the data stream including the error has a coding rate of a low error correction ability.

24. (New) The decoding method of decoding multiplexed data using the Viterbi decoding method, wherein the multiplexed data are composed by time division multiplexing a plurality of data streams, the multiplexed data are coded with at least a convolution code, according to claim 12, further comprising:

measuring a strength of a noise in the multiplexed data;

checking whether the strength of the noise measured is equal to or greater than a predetermined value; and

initializing the path metric if the strength of the noise measured is equal to or greater than a predetermined value.

25. (New) The decoding method of decoding multiplexed data using the Viterbi decoding method, wherein the multiplexed data are composed by time division multiplexing a plurality of data streams, the multiplexed data are coded with at least a convolution code, according to claim 12, wherein the one of the data streams has a coding rate of a high error correction ability and the data stream including the error has a coding rate of a low error correction ability.

26. (New) The data receiving system according to claim 13, further comprising:

a signal-to-noise ratio monitor which measures a strength of a noise included in the multiplexed data;

a comparison unit which checks whether the strength of the noise measured is equal to or greater than a predetermined value and outputs a notification signal to the initialization signal generation unit if the strength of the noise measured is equal to or greater than the predetermined value;

wherein the initialization signal generation unit outputs the initialization signal for initializing the path metric upon receiving the notification signal.

27. (New) The data receiving system according to claim 13, wherein the one of the data streams has a coding rate of a high error correction ability and the data stream including the error has a coding rate of a low error correction ability.

28. (New) The decoder according to claim 15, further comprising:

a signal-to-noise ratio monitor which measures a strength of a noise included in the multiplexed data;

a comparison unit which checks whether the strength of the noise measured is equal to or greater than a predetermined value and outputs a notification signal of the strength of the noise measured is equal to or greater than the predetermined value,

wherein the initialization signal generation unit outputs the initialization signal for initializing the path metric upon receiving the notification signal.

29. (New) The data receiving system according to claim 15, wherein the one of the data streams has a coding rate of a high error correction ability and the data stream including the error has a coding rate of a low error correction ability.

30. (New) The data transmitting and receiving system according to claim 17, further comprising:

a signal-to-noise ratio monitor which measures a strength of a noise included in the multiplexed data;

a comparison unit which checks whether the strength of the noise measured is equal to or greater than a predetermined value and outputs a notification signal if the strength of the noise measured is equal to or greater then the predetermined value,

wherein the initialization signal generation unit outputs the initialization signal for initializing the path metric upon receiving the notification signal.